



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

had in a sense further development in the panlogism of Hagel, to the more efferent conceptions illustrated by Kant's "Critique of the Practical" rather than the Pure Reason, by Schopenhauer," etc., and how this reaction against intellectualism has lately been extended and confirmed by evolutionary and experimental studies which insist that the will rather than the intellect is our clue in understanding experience, how this makes knowledge no longer an end in itself but always a means. He finally concludes that "in every case physiological and comparative psychology must fall back on the facts and analogies of our own experience." The view that begins with mechanism and ends with mind gives the experient only a presentational kind of physiological psychology of the worst sort, "where physiological and psychological conceptions are forever coquetting with each other, and where, as a result, unseemly hybrids are not infrequent," like Huxley's "Ideogenous Molecules."

Now, all this seems to us trite, barren, obsolete and irrelevant. There is no more patent and commonplace fact in the psychological world than this great transition, and nothing that the student of mind is so ready to admit as that man is indefinitely more anthropomorphic than he knows and must forever judge and know everything in terms of his own psychic activities. But one of the chief claims of experimental, genetic, and comparative psychology is that it sheds new light upon our own activities which the arm-chaired introspectionist who turns his mental eyes inward has grown impotent to add to. The other papers in this first number make contributions of what was unknown before to the modern reader. This adds nothing. In fact the introspectionist of this type has ceased to interest the progressive, modern student of mind, except that his writings are precious documents of a unique type of mind. The mortgage the epistemologist always demands the experimenter to cancel is essentially a spurious one. The limitations he lays down, the definitions in which he is so profuse, the stepmotherly anxiety lest the laboratory man should make some *faux pas* or perturb his circles, suggests that the true "hybrid" is the epistemologist who attempts to legislate for experimentation in which he has no practical experience. The very life of the new psychology depends upon whether it can throw off the leading strings of the old sufficiently to secure its own free movement. It is preposterous, at present, to define psychology save as Bleek long ago undertook to define philology: *es ist was es wird*. It is in a process of rapid development. It has so many lines and departments that if it could be correctly described to-day all the definitions might be outgrown to-morrow. None but an almost parnoiac systematism would attempt to write even a logic or a methodology for it. As grammar comes after the golden period of language and literature, so these things must come when the present enormous expansion of psychology in all its departments is approaching the end of a period. The new movement owes all its achievements to the method of treating psychic activities as natural phenomena and as well might a speculative materialist attempt to "hold up" or cast suspicion on the actual laboratory work of physics and chemistry, because no one knows just what an atom, a vortex, or ether really is, as the epistemologist obtrude his scholastic scruples into the domain of psychology as a science. H.

*Grundzüge der Psychologie, Band I. Allgemeiner Teil. Die Prinzipien der Psychologie*, von HUGO MÜNSTERBERG. Leipzig, J. A. Barth. 1900. pp. XII+565. 12M.

This first volume of a treatise upon which Professor Münsterberg is engaged, deals only with the fundamental principles and general problems of psychology. While it is for that reason introductory in scope

and character, yet it is in a measure complete in itself. The forthcoming part of the work will round off the author's system with a discussion of the special problems of individual and social psychology.

Professor Münsterberg's point of view is already familiar to readers of his "Psychology and Life." The rapid progress of the sciences in the nineteenth century, and the wide-spread interest which they excited, turned contemporaneous thought into a naturalistic channel. The scientific method was extended to more and more disciplines; scientific explanations were pressed into ever-widening fields. This tendency attained such impetus that its influence is felt upon the thought of the present day. Its dominant characteristics are lack of criticism and absence of systematization. Sound philosophy has been dethroned and naturalism reigns in her stead. The movement has left psychology in a deplorable condition. There has been a thirst for facts and particular details with but little desire for a systematized body of knowledge. Moreover the psychologist's zeal for the amassing of facts has led him to ignore the epistemological and metaphysical principles involved in his search. His method of procedure has been left to the guidance of instinct; he has been guilty of every crime in the philosophic calendar.

Now the psychologist is clearly within his rights in refraining from constructing a system. But if his solution of the problems is even to approximate finality he must be discreet in his choice of methods and discriminating in his use of concepts. It is essential, then, that we go back to first principles and look well to our foundations before we proceed to build upon them. The psychologist must be sure he is right before he goes ahead; it is Professor Münsterberg's purpose not only to show him that he is wrong but to set him right. Hence the present volume is not concerned with a re-enumeration of the particular facts of psychology. Its object is more fundamental and preparatory; it aims to ensure future progress and to safeguard future results by subjecting the foundations of the science to a critical examination. It is the vanguard of the oncoming army of psychologists; its mission is to map out a safe line of march and to establish a secure base of operation. But besides laying down an epistemological foundation for psychology by a critical examination of the fundamental concepts, assumptions, limits and ideals of the science, it emphasizes the necessity of a systematization of psychological knowledge.

Professor Münsterberg champions the cause of idealism as against the prevailing positivistic tendency. The book is a polemic against the "positivistic view of the world which grows out of psychology itself in more and more threatening form;" its author disclaims any disposition on his own part to "elevate psychology to the rank of a positivistic philosophy." As a metaphysician Professor Münsterberg is an ethical idealist of the Fichtean school; as a psychologist he is an atomist of the most extreme mechanical type. He promises a synthesis of these two positions; not, however, by inconsistent compromises on either side, but a higher synthesis which will do strict justice to idealism while it guarantees the most complete freedom to experimental psychology.

He begins his task by working out a classification of the sciences from the basis of the antithesis between causality and teleology. He recognizes two distinct types—the objectifying and the subjectifying sciences. Sciences of the first type deal with a subject-matter which is regarded as mere meaningless existence, while in those of the second type the datum has meaning or value for the subject. Scientific procedure in the former case consists in defining the character of the meaningless objects and discovering their causal relations. The sub-

jectifying sciences have to do with the subject's taking up definite attitudes toward significant objects; scientific procedure here consists in interpreting and evaluating the objects, never in determining their causal connections. Physics and psychology fall under the objectifying category, while history, ethics and æsthetics are representatives of the subjectifying group.

Within each of these groups appears a second bipartition, based upon the degree of community of the object. Certain objects regarded as unmeaning existences, are the common experience of several individuals, and are for that reason assigned to physics. Other meaningless objects constitute the subject-matter of psychology, in virtue of the fact that they are the peculiar possession of but a single individual. The same distinction is carried through the subjectifying sciences, where the individual acts of will of the position-taking subject are set over against his common or over-individual acts of will. The latter fall within the province of the normative sciences while the former become the material of the historical sciences. The two scientific methods remain distinct throughout. It is the business of the objectifying sciences to *explain* by a process of tracing out causal sequences. The subjectifying sciences make no use of the concept of causality; it is their business to *understand*, by a process of interpretation and evaluation.

It is to be borne in mind, however, that the sciences do not deal with real experience. Primary experience is transformed and made over for scientific purposes—a transformation which differs in kind for each of the various classes of science. For while one science regards its transformation product as a bare non-significant existent, another treats its product as a significant content whose meaning and value are to be unfolded. Moreover it is the employment of this transformation process which differentiates the man of science from the practical man of real life. It is only in the affairs of real life, as opposed to the scientific pursuits, that we have to do with reality. The sciences deal with fictitious objects arbitrarily abstracted from the world of reality for purposes of scientific expediency.

An examination of the psychical object—this meaningless mental process which has been marked off from all other objects as the material with which psychology is to deal—reveals the fact that it is even more unlike other objects than has commonly been supposed. It is non-temporal and non-spatial in character; none but physical objects are in space and time. It is also devoid of quantitative attributes. It is not subject to measurement, nor has it any causal connection with its fellows. In short, it possesses the single attribute of quality.

Psychical objects, then, constitute a series—or a number of series,—each of whose terms is distinguished from every other by qualitative differences only. It has been customary in psychology to assume that variation of sensation runs parallel with variation of physical stimulus, *e. g.*, to correlate pitch, tonal intensity and clang tint with the length, the amplitude and the form, of the sound-wave; and thus to find a physical basis for the classification of the differences of sensation. But the complexity of the relations obtaining between stimulus and sensation, together with our almost total ignorance of the intervening brain process, makes this basis of classification hazardous and undesirable. It is proposed, therefore, to work out a classification based solely upon the material of the psychical series themselves. All qualitative differences are first subdivided into three classes—differences of content-quality, of form-quality and of value-quality. Within each class again are found characteristic differences in accordance with which the members of the class may be seriated in various dimensions.

The list of possible dimensions of the first class includes kind, intensity and independence, *i. e.*, the degree to which the individual sensation resists fusion and loss of identity on entering into combination with others. Variations of form-quality also show well-marked dimensional directions of kind of form (spatial and temporal), intensity of form, and independence of form. The value-qualities constitute a more multiform series of dimensions, to which belong values of vividness, of pleasantness-unpleasantness, of spatial direction, of temporal direction and others.

As a result of the utter poverty of relations manifested by mental processes they cannot be explained or even described, save by an indirect means. The assumption of a strict psychophysical parallelism furnishes a solution of this problem. The psychical process may be described and explained by stating the physical conditions under which it arises and the physical effects which follow upon it. The discussion of the principle which Professor Münsterberg adopts as the touch-stone of psychological explanation—his Action Theory—constitutes what will doubtless prove to be the most valuable portion of his book.

Before he formulates the action theory he prepares the way by a detailed criticism of associationism and apperceptionism, which he proposes to supplant. He recognizes the heroic service rendered by the theory of apperception in the history of psychology—a service which consisted in combating the overestimation of associationism. Yet the theory of apperception must be rejected because no purely sensory theory can do justice to the wealth of mental content, nor can it, from the very nature of the case, account for the phenomenon of inhibition. Moreover, it is unscientific in that it applies the category of teleology to a purely causal series. The association theory is no less inadequate. In the first place it furnishes no physiological substrate for variations of psychical elements other than changes of quality and intensity. The varying degrees of vividness or forcibleness are left unaccounted for. And in the second place it gives no clue as to the mechanism which selects the psychophysical excitation, *i. e.*, it does not explain why this particular sensation and not another has been facilitated and endowed with greater vividness. The fundamental process which it sets out to explain is left to the guidance of accident; only the final effect is described in physiological terms. Its fatal defect, in short, is its failure to give a psychophysics of vividness-values. Yet the theory of association is sound in principle and is acceptable so far as it goes. It must, however, be supplemented by the introduction of an auxiliary factor if it is to become a satisfactory psychological theory. It has already been pointed out that no merely sensory theory can furnish an adequate basis for the explanation of all psychical phenomena. Inhibition, for example, can come about only through the opposition and counteraction of antagonistic factors. Now, there are no two ideas which as psychical processes exclude each other; there are no two sensations whose nature is such that they cannot occur in consciousness together. Psychological explanation must, therefore, have recourse to the motor functioning of the organism. The paired arrangement of the muscular mechanism furnishes just such a system of antagonistic factors as is required. Every flexor is opposed by an extensor; the contraction of the one, means the absence of contraction in the other.

The problem which the action theory attempts to solve is one of the most important, and one of the most elusive in the whole field of psychology. How are the familiar facts of facilitation and inhibition to be explained? What determines the varying degrees of vividness of

sensations? Why, in a given case, is this sensation and not another facilitated or inhibited?

Professor Münsterberg's action theory takes over from the theory of association the following theses: Sensation is the sole content of consciousness; the quality of sensation depends upon the spatial position of the sensory area of the cortex which is stimulated; the intensity of the sensation depends upon the strength of the excitation which is conducted to the cortex. Here he introduces a new factor—the centrifugal excitation which passes from the cortex to the motor apparatus—and sets up a new thesis: the sensation depends for its vividness upon the intensity of the centrifugal or motor excitation. It is assumed, then, that the sensory excitation as such, is not attended by a psychical process but enters consciousness only on being transformed into motor discharge. Sensory excitation without discharge corresponds to the minimal degree of vividness—to total inhibition of sensation. And the more complete the discharge, the more vivid and forcible the sensation. In every case the possibility of motor discharge is the *sine qua non* of the psychical process. The motor discharge, in turn, is itself conditioned by the molecular disposition of the efferent path.

A physiological basis is furnished for the theory in the paired arrangement, and the reciprocal antagonism of the motor centres. Every motor centre has a corresponding, but antagonistic motor centre. When either member of the pair is stimulated to action, the other member is, by that very fact, condemned to inactivity. This opposition of motor functioning is the basis of all facilitation and inhibition, of all selecting and discarding of psychical processes.

The action theory may be stated baldly as follows: Every mental process is constituted from two factors—sensory and motor. Without the co-operation of motor as well as sensory factors, sensation itself is impossible. The vividness of the sensation depends upon the sensory excitation at the cortex finding an unobstructed path of discharge leading down from the cortex to the sub-cortical motor centres. The excitation of any sub-cortical motor centre is attended by an inhibition of the antagonistic motor centre. Hence it follows that sensations are vivid and forcible in inverse ratio to the amount of resistance which the path of discharge of the sensory excitation encounters in the sub-cortical centres to which it leads. When the discharge of the sensory excitation meets with no resistance, the sensation enters consciousness with maximal vividness; when the path is totally blocked complete inhibition results, and the excitation fails to cross the threshold of consciousness.

This formulation of the action theory, however, gives only its schematic outline. The mental economy is much more complex than our envisagement has shown it to be. Each motor centre is correlated not only with a single antagonistic centre, but with many others besides. As a result of this complex network of co-ordinations, the motor impulse from any centre is in more or less intimate reciprocal relation with a host of other motor impulses from other centres. Moreover practice, fatigue, habit and the like, make themselves felt throughout the system, by effecting various readjustments of co-ordinations. Although motor functioning is enormously complicated by these interrelations, on the one hand, and by the acquisition of these readjusted co-ordinations, on the other, yet the principle of action remains the same throughout. The sensation, or the movement which finally arises in any given case is invariably the joint product of the total motor dispositions and the present sensory excitations.

The possibility of the excitation passing out by way of different

paths of discharge, has not been considered as yet. It is evident, however, that a variation of exit is far from being impossible. The minute anatomy of the cell, and the nature of the chemical processes which take place within the cell, are but little known. But it may well be, that the varying degrees of intensity of excitation, the different kinds and amounts of simultaneous action in other cells, the changing state of cellular nourishment and of resistance in subordinate paths, may serve to switch the motor discharge along different routes. There is ground, then, for setting up yet another thesis, namely, that the constancy of the spatial relations of the paths of discharge furnishes the physiological basis for a constancy of the values of sensations; and that a change in the spatial relations, conditioned by any of the factors enumerated above, is attended by a variation in the sensation value. In its most general formulation, then, the action theory states that every element of consciousness is co-ordinated with the cortical transition from excitation to discharge, in such manner that the quality of the sensation depends upon the spatial position of the path of excitation, the intensity of the sensation upon the strength of the excitation, the shading of value of the sensations upon the spatial position of the path of discharge, and the vividness of the sensation upon the strength of the discharge.

The detailed application of this theory to the special problems of psychology, is reserved for the second volume. A concluding chapter of the present volume, however, briefly indicates how it applies to attention, suggestion, hypnosis, apperception and abstraction. In a given complex that sensation which finds the conditions favorable for motor discharge, is grasped by the attention. That for which action is not ready, passes unnoticed or claims the attention only when the intensity of the excitation compels action. The attention can be distracted only by an excitation which leads to antagonistic action. In suggestion and hypnosis the suggested idea inhibits the opposite idea, —i. e., the idea which incites opposite action—through the medium of the motor centres. The motor centres for certain groups of actions are so attuned that the innervation of the antagonistic movement becomes impossible; the antagonistic idea cannot, therefore, come to consciousness even when the appropriate sensory stimulus is applied. In the case of apperception there exists a peculiar molecular disposition of the motor centres as the result of previous practice. The present stimulus is therefore responded to by a richer and more complex reaction than would otherwise arise. This fuller motor reaction arouses a richer complex of sensory processes, and thus constitutes the psychophysical basis for the difference between apperception and perception. Abstraction is characterized by a general motor innervation. The concept is the idea corresponding to a motor reaction which is common to a group of objects.

Professor Münsterberg's psychology is an atomism of the most extreme and mechanical sort. Sensations are, he tells us, the ultimate products of present-day analysis; but it is by no means certain that the psychology of the future will not push the analysis farther, and decompose the sensations into *Urelemente*. These *Urelemente*, it may be conjectured, will be found to be each unique in kind; their reciprocal action and reaction may give rise to the various phenomena manifested by sensations—thus, *e. g.*, similarity and fusion are to be accounted for. In the present state of physical and physiological analysis, however, we have no elemental psychophysical processes with which to correlate the *Urelemente*. Since for that reason they have no noetic relation with the physical world, they are incapable of communication or explanation. All speculation regarding them must therefore remain, for the present at least, a theoretical luxury.

To summarize: Professor Münsterberg has assigned to psychology a definite place in the hierarchy of the sciences; he has marked off and characterized the subject matter with which psychology is to deal and shown how she is to deal with it; he has laid down a principle for the systematization of psychological knowledge; he has shown how the limitations of that knowledge are to be transcended, how a naturalistic psychology is to be recognized as but a one-sided representation of a reality of which an ethical idealism gives a more adequate account.

The point at which criticism can most effectively be directed against the system, is the assumption upon which is based the classification of the sciences. Here it is assumed that causality and teleology are not only antagonistic, but mutually exclusive categories. The science which has recourse to teleological explanation is held to be debarred, in consequence, from the employment of causal explanation and *vice versa*. This argument is also used, later on, as a weapon against Wundt's theory of apperception. From this assumption and the construction subsequently erected upon it, various paradoxical conclusions follow. Science deals not with a world of reality but with artifacts. The several sciences are not a corporate body but a congeries of discrete and independent disciplines. Their only common ground is the common core of primary experience from which they all radiate in divergent paths. Scientific co-operation, in any general sense of the term at least, is unmeaning. Physics and psychology seem to furnish an exception to this rule; here, however, the relation is not one of mutual reciprocity, but of arrogant dominance on the part of physics, and slavish dependence on the part of psychology. Psychology is denied the possibility of ever becoming an independent science; all her explanations are, at bottom, physiological and psychophysical. Moreover, psychology is divorced from the historical sciences; she belongs to the objectifying camp, they to the subjectifying. Since she is forbidden to interpret, or to draw upon history, it would appear that most writers upon social psychology, at least, have lived and labored in vain. Professor Münsterberg will find few psychologists to agree to this narrowing of subject-matter and method. His is, in the strictest sense, a structural psychology; he denies to functional psychology the right to exist.

There are likely to be protests from the historian as well. A dominant characteristic of modern historical science is its insistence upon the importance of tracing out the *causal nexus* which is held to run through sequences of events. Not only is this method to be abandoned, but no subjectifying science can consistently employ the concept of evolution in any causal sense. Rather than accept these conclusions the historian will raise the previous question and inquire into the logical justification of Professor Münsterberg's original assumption. Are causality and teleology essentially incompatible? Even if we limit the meaning of causality to include none but mechanico-quantitative relations, we can scarcely afford to dogmatize upon the question. In any case the questionable assumption that they are mutually exclusive makes an unstable foundation for a psychological system.

The synthesis between his philosophy and his psychology has not been accomplished in a manner that is satisfactory to the psychologist, at least. That it has been accomplished at all is due to the unreal character of the objects with which psychology is made to deal. The reality of the ethical self is secured by removing psychology from the world of reality and leaving her to content herself with fictitious mental processes.

A criticism of the action theory can scarcely be attempted until the



theory and its application have been presented in greater detail. The new hypothesis is in line with the motor tendency which has been forcing its way to the front in the literature of the past decade. Moreover, it permits an easy envisagement of the physiological processes which are held to be the substrate of mental phenomena. It is, however, based upon a purely hypothetical physiology; its ultimate triumph over other hypothesis of recent origin can only result from its ability to give a more adequate account of the facts of the mental life.

This book should be in the hands of every psychologist. The range of topics treated is wide, the argument is closely articulated and the mode of treatment is original in the extreme. Professor Münsterberg brings to bear upon his work a rare genius for keen and exhaustive analysis. His thorough grasp of details is no less remarkable than his power of systematic generalization. The questions which he discusses have in the main an epistemological bearing, and it is entirely disputable whether his conclusions will be accepted by any large number of his colleagues either in philosophy or in psychology. But quite apart from its more positive and direct contribution to psychological theory, the *Grundzüge* does a valuable service in its searching and systematic criticism of the foundations of the science. Even if not a single position advocated by the author be accepted, their very advocacy and refutation will tend to such a clearing up of ideas as is sorely needed in the science.

J. W. BAIRD.

Cornell University.

*Why the Mind has a Body*, by C. A. STRONG. The Macmillan Co., 1903, pp. vii, 355.

The title of Professor Strong's book may be interpreted as a twofold promise; first, that the reader is to be given final reasons and not merely empirical formulas and, secondly, that the outcome is to be some form of idealistic doctrine. Both parts of the implicit promise are fulfilled; for, in solving the problem of the relation of consciousness to the physical world, the author rests his case on nothing less than the final nature of things and the final nature of things turns out to be mental. The application of this idealistic doctrine to the problem of psychophysical relationships may be anticipated in a few words.

Reality includes individual minds and other mental 'things-in-themselves.' Now it is inherent in the nature of reality that it should symbolize or represent itself, its symbols or representations being the phenomenal world of perception. Since 'brain-events,' together with their physical antecedents and consequents, belong to the symbolic or phenomenal world and 'mental-events' to the real world, it follows that bodily and mental processes can never meet on the same plane; the current terms 'parallelism' and 'interactionism' do not, therefore, properly represent the relation which they aim to express. The relation is rather one of symbol to thing symbolized, of appearance to reality. The metaphysical conception underlying this doctrine of relationship Professor Strong names Psychophysical Idealism.

The general argument of the book runs as follows. Three typical theories of the mutual relations of mind and body are in the field: the theory of automatism, the theory of interaction, and the theory of parallelism. Each theory—or better each group of theories, since each has various shades of meaning—has its positive arguments and against each strong objections, both formal and material, may be urged. The facts of experience are ambiguous; that is to say, they do not compel an acceptance of any one of the three theories to the exclusion of the other two. Interaction is not susceptible of proof because the causal efficacy of consciousness cannot be directly established; automatism is